4.2 AIR QUALITY

This section includes a summary of applicable regulations, existing air quality conditions, and an analysis of potential short-term and long-term air quality impacts of the project. The method of analysis for short-term construction, long-term regional (operational), local mobile source, toxic and odorous air emissions is consistent with the recommendations of the Bay Area Air Quality Management District (BAAQMD), as presented in the BAAQMD CEQA Guidelines: Assessing the Air Quality Impacts of Projects and Plans (BAAQMD 1999). In addition, mitigation measures are recommended, as necessary, to reduce potentially significant adverse air quality impacts. Air quality impacts of the project under either design option or budgeted versus maximum capacity conditions would not substantially differ, and as a result, this analysis does not distinguish between these conditions.

4.2.1 EXISTING CONDITIONS

The project site is located in Marin County, which is under the jurisdiction of the BAAQMD. The BAAQMD is the primary local agency with respect to air quality for all of Marin County. Marin County is within the San Francisco Bay Area Air Basin (SFBAAB), which also comprises all of Alameda, Contra Costa, Napa, San Francisco, San Mateo, and Santa Clara counties, the southern portion of Sonoma, and the southwestern portion of Solano County. Air quality in this area is determined by such natural factors as topography, meteorology, and climate, in addition to the presence of existing air pollution sources and ambient conditions. These factors along with applicable regulations are discussed below.

CLIMATE, TOPOGRAPHY, AND AIR POLLUTION POTENTIAL

Climate and Topography

The SFBAAB is characterized by complex terrain, consisting of coastal mountain ranges, inland valleys, and bays, which distort normal wind flow patterns. The Coast Range splits resulting in a western coast gap, Golden Gate, and an eastern coast gap, Carquinez Strait, which allow air to flow in and out of the SFBAAB and the Central Valley.

The climate is dominated by the strength and location of a semi-permanent, subtropical high-pressure cell. During the summer, the Pacific high pressure cell is centered over the northeastern Pacific Ocean resulting in stable meteorological conditions and a steady northwesterly wind flow. Upwelling of cold ocean water from below to the surface because of the northwesterly flow produces a band of cold water off the California coast. Thus, the cool and moisture-laden air approaching the coast from the Pacific Ocean is further cooled by the presence of the cold water band resulting in condensation and the presence of fog and stratus clouds along the Northern California coast.

In the winter, the Pacific high-pressure cell weakens and shifts southward resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms. Weak inversions coupled with moderate winds result in a low air pollution potential.

Local meteorology of the project area is represented by measurements recorded at the San Rafael station. The normal annual precipitation, which occurs primarily from November through March, is approximately 35 inches. January temperatures range from a normal minimum of 41 degrees Fahrenheit (°F) to a normal maximum of 57°F. July temperatures range from a normal minimum of 54°F to a normal maximum of 81°F (National Oceanic and Atmospheric Administration 1992). The annual predominant wind direction and speed is from the northwest at approximately 20 mph (California Air Resources Board 1994).

Air Pollution Potential

Air pollution potential is influenced by wind circulation, inversions, stability, solar radiation, and sheltered terrain. For instance, low wind speeds result in restricted movement of air pollution, thus leading to potentially unhealthy levels of air pollution concentrations. Low wind speeds occur most frequently in the fall, winter, early morning, and at night.

An inversion is a layer of warmer air over a layer of cooler air. Inversions influence the mixing depth of the atmosphere, which is the vertical depth available for diluting air pollution near the ground, thus significantly affecting air quality conditions. The SFBAAB experiences two types of inversions. Summer and fall inversions are a result of subsiding air from the subtropical high-pressure zone and from the cool marine layer that is drawn into the area by the heated low-pressure zone in the Central Valley. Winter inversions, also termed radiation inversions, are formed as heat quickly radiates from the earth's surface after sunset cooling the surrounding air. Radiation inversions are strongest on clear, low-wind, cold winter nights, which allow the build-up of carbon monoxide and particulate matter.

Stability describes the resistance of the atmosphere to vertical motions. The stability of the atmosphere is dependent upon the vertical distribution of temperature with height. When the temperature decreases vertically at 10 degrees Celsius (°C) per 1,000 meters, the atmosphere is "neutral." When the lapse rate is greater than 10°C per 1,000 meters, the atmosphere is "unstable." When the lapse rate is less than 10°C per 1,000 meters, the atmosphere is "stable." Stability categories range from "Extremely Unstable" (Class A), through Neutral (Class D), to "Stable" (Class F). Unstable conditions occur during daytime hours when solar heating warms the lower atmospheric layers sufficiently. Under A stability conditions, large horizontal wind direction fluctuations occur coupled with large vertical mixing depths. Under B stability conditions, wind direction fluctuations and the vertical mixing depth are less pronounced because of a decrease in the amount of solar heating. Under C stability conditions, solar heating is weak along with horizontal and vertical fluctuations because of a combination of thermal and mechanical turbulence. Under D stability conditions, vertical motions are primarily generated by mechanical turbulence. Under E and F stability conditions, air pollution emitted into the atmosphere will travel downwind with poor dispersion.

The frequency of hot, sunny days during the summer months in the area is another important factor that affects air pollution potential. In the presence of solar radiation, reactive organic gases (ROG) and oxides of nitrogen (NO_X) form to produce ozone (O_3).

EXISTING AMBIENT AIR QUALITY

The California Air Resources Board (CARB) and the U.S. Environmental Protection Agency (EPA) currently focus on the following air pollutants as indicators of ambient air quality: O_3, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM), and lead (Pb). Because these are the most prevalent air pollutants known to be deleterious to human health and extensive health-effects criteria documents are available, they are commonly referred to as "criteria air pollutants." State and federal air quality standards and designations are provided in Table 4.2-1.

Ozone

O_3 is a photochemical oxidant, a substance whose oxygen combines chemically with another substance in the presence of sunlight, and the primary component of smog. O_3 is not directly emitted into the air, but is formed through complex chemical reactions between precursor emissions of ROG and NO_X in the presence of sunlight. ROG are volatile organic compounds that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO_X are a group of gaseous compounds of nitrogen and oxygen that results from the combustion of fuels.

Table 4.2-1
Ambient Air Quality Standards and Designations

Pollutant	Averaging Time	California		National Standards [2]		
		Standards [1,3]	Attainment Status [8]	Primary [3,4]	Secondary [3,5]	Attainment Status [9]
Ozone (O_3)	1-hour	0.09 ppm (180 $\mu g/m^3$)	N (Serious)	0.12 ppm (235 $\mu g/m^3$)[6]	Same as Primary Standard	N (Moderate)
	8-hour	–	–	0.08 ppm (157 $\mu g/m^3$)[6]		N (Marginal)
Carbon Monoxide (CO)	1-hour	20 ppm (23 mg/m^3)	A	35 ppm (40 mg/m^3)	–	U/A
	8-hour	9 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)		
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	–	-	0.053 ppm (100 $\mu g/m^3$)	Same as Primary Standard	U/A
	1-hour	0.25 ppm (470 $\mu g/m^3$)	A	–		–
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	–	-	0.030 ppm (80 $\mu g/m^3$)	–	A
	24-hour	0.04 ppm (105 $\mu g/m^3$)	A	0.14 ppm (365 $\mu g/m^3$)	–	
	3-hour	–	-	–	0.5 ppm (1300 $\mu g/m^3$)	
	1-hour	0.25 ppm (655 $\mu g/m^3$)	A	–	–	–
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 $\mu g/m^3$ *	N	50 $\mu g/m^3$ [6]	Same as Primary Standard	U
	24-hour	50 $\mu g/m^3$		150 $\mu g/m^3$ [6]		
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 $\mu g/m^3$*	N (Proposed)	15 $\mu g/m^3$	Same as Primary Standard	U (Recommended)
	24-hour	-	-	65 $\mu g/m^3$		
Lead [7]	30-day Average	1.5 $\mu g/m^3$	A	–	–	–
	Calendar Quarter	–	-	1.5 $\mu g/m^3$	Same as Primary Standard	A
Sulfates	24-hour	25 $\mu g/m^3$	A	i. **No Federal Standards**		
Hydrogen Sulfide	1-hour	0.03 ppm (42 $\mu g/m^3$)	U			
Vinyl Chloride[7]	24-hour	0.01 ppm (26 $\mu g/m^3$)	U/A			
Visibility-	8-hour	Extinction				

Table 4.2-1 Ambient Air Quality Standards and Designations						
Pollutant	Averaging Time	California		National Standards [2]		
		Standards [1, 3]	Attainment Status [8]	Primary [3,4]	Secondary [3,5]	Attainment Status [9]
Reducing Particle Matter		coefficient of 0.23 per kilometer — visibility of 10 miles or more (0.07—30 miles or more for Lake Tahoe) because of particles when the relative humidity is less than 70%.	U			

* On June 20, 2002, ARB approved staff recommendation to revise the PM_{10} annual average standard to 20 µg/m^3 and to establish an annual average standard for $PM_{2.5}$ of 12 µg/m^3. These standards took effect on July 5, 2003. Information regarding these revisions can be found at http://www.arb.ca.gov/research/aaqs/std-rs.htm.

1 California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, particulate matter (PM_{10} and $PM_{2.5}$), and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2 National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. The PM_{10} 24-hour standard is attained when 99% of the daily concentrations, averaged over 3 years, are equal to or less than the standard. The $PM_{2.5}$ 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the EPA for further clarification and current federal policies.

3 Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4 National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

5 National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

6 New federal 8-hour ozone and fine particulate matter standards were promulgated by the EPA on July 18, 1997. Contact the EPA for further clarification and current federal policies.

7 CARB has identified lead and vinyl chloride as toxic air contaminants with no threshold of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

8 Unclassified (**U**): a pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.
Attainment (**A**): a pollutant is designated attainment if the state standard for that pollutant was not violated at any site in the area during a 3-year period.
Nonattainment (**N**): a pollutant is designated nonattainment if there was a least one violation of a state standard for that pollutant in the area.
Nonattainment/Transitional (**NT**): is a subcategory of the nonattainment designation. An area is designated nonattainment/transitional to signify that the area is close to attaining the standard for that pollutant.

9 Nonattainment (**N**): any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant.
Attainment (**A**): any area that meets the national primary or secondary ambient air quality standard for the pollutant.
Unclassifiable (**U**): any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.

Source: California Air Resources Board 2003 and 2004

O_3 located in the upper atmosphere (stratosphere) acts in a beneficial manner by shielding the earth from harmful ultraviolet radiation that is emitted by the sun. However, O_3 located in the lower atmosphere (troposphere) is a major health and environmental concern. Because sunlight and heat serve as catalysts for the reactions between O_3 precursors, peak O_3 concentrations typically occur during the summer in the Northern Hemisphere (U.S. Environmental Protection Agency 2004). In general, O_3 concentrations over or near urban and rural areas reflect an interplay of emissions of O_3 precursors, transport, meteorology, and atmospheric chemistry (Godish 1991).

The adverse health effects associated with exposure to O_3 pertain primarily to the respiratory system. Scientific evidence indicates that ambient levels of O_3 affect not only sensitive receptors, such as asthmatics and children, but healthy adults as well. Exposure to ambient levels of O_3 ranging from 0.10 to 0.40 ppm for 1 to 2 hours has been found to significantly alter lung functions by increasing respiratory rates and pulmonary resistance, decreasing tidal volumes, and impairing respiratory mechanics. Ambient levels of O_3 above 0.12 ppm are linked to symptomatic responses that include such symptoms as throat dryness, chest tightness, headache, and nausea. In addition to the above adverse health effects, evidence also exists relating O_3 exposure to an increase in the permeability of respiratory epithelia; such increased permeability leads to an increase in responsiveness of the respiratory system to challenges, and the interference or inhibition of the immune system's ability to defend against infection (Godish 1991).

With respect to the National Ambient Air Quality Standards (NAAQS), Marin County is currently designated as a non-attainment area for both the 1- and 8-hour O_3 standards, as shown in Table 4.2-1 (California Air Resources Board 2003, 2004). In addition, Marin County is currently designated as a serious non-attainment area for the state 1-hour ozone standard (California Air Resources Board 2003, 2004).

As shown in Table 4.2-2, neither the state nor the national O_3 standards were exceeded from 2001 to 2003.

According to the 2004 California Almanac of Emissions and Air Quality (California Air Resources Board 2004), emissions of ozone precursors (ROG and NO_X) have decreased in the SFBAAB since 1975 and are projected to continue declining through 2010. The SFBAAB has a significant motor vehicle population, and the implementation of stricter motor vehicle controls has resulted in significant emissions reductions for NO_X and ROG. Stationary source emissions of ROG have declined over the past 20 years because of new controls for oil refinery fugitive emissions and new rules for control of ROG from various industrial coatings and solvent operations.

With respect to O_3 air quality trends according to the almanac, peak O_3 values in the SFBAAB have declined approximately 12 percent from 1981 to 2000. Although this trend has not been consistently downward, the ambient concentrations generally declined from 1981 to 1994. Since 1994, the peak indicator values have been somewhat higher. However, it is not clear whether these data represent a significant change in the overall trend. Data from 1999 and 2000 are slightly lower than values during the prior few years.

The number of days above the state and national 1-hour ozone standards shows a similar trend. The number of exceedance days generally decreased until the mid-1990s and then increased during the period from 1995 to 1998. The one exception is 1997, when there was a sharp decline in the number of exceedance days. However, meteorological conditions during 1997 were favorable for low ozone concentrations. Given this, the low values during that year are not unexpected. During 1999 and 2000, the number of exceedance days again declined. However, data from more years are needed to determine whether the improvement will continue.

Table 4.2-2 Summary of Annual Ambient Air Quality Data (2001-2003)			
	2001	2002	2003
OZONE (O_3)			
State Standard (1-hr. avg., 0.09 ppm) National Standard (1-hr./8-hr. avg., 0.12/0.08 ppm)			
Maximum Concentration (1-hr./8-hr. avg., ppm)	0.087/ 0.065	0.077/ 0.056	0.087/ 0.067
Number of Days State Standard Exceeded	0	0	0
Number of Days National 1-hr./8-hr. Standard Exceeded	0/0	0/0	0/0
CARBON MONOXIDE (CO)			
State Standard (1-hr./8-hr. avg., 20/9.1 ppm) National Standard (1-hr./8-hr. avg., 35/9.5 ppm)			
Maximum Concentration (1-hr./8-hr. avg., ppm)	5.2/2.42	4.1/1.88	3.8/2.03
Number of Days State Standard Exceeded	0	0	0
Number of Days National 1-hr./8-hr. Standard Exceeded	0/0	0/0	0/0
NITROGEN DIOXIDE (NO_2)			
State Standard (1-hr. avg., 0.25 ppm) National Standard (annual, 0.053 ppm)			
Maximum Concentration (1-hr. avg., ppm)	0.061	0.057	0.066
Number of Days State Standard Exceeded	0	0	0
Annual Average (ppm)	0.017	0.017	0.016
RESPIRABLE PARTICULATE MATTER (PM_{10})			
State Standard (24-hr. avg., 50 $\mu g/m^3$) National Standard (24-hr. av., 150 $\mu g/m^3$)			
Maximum Concentration ($\mu g/m^3$, National/California[1])	78.8/83.2	69.6/72.6	39.1/40.5
Number of Days State Standard Exceeded (Measured[2])	3	3	0
Number of Days National Standard Exceeded (Measured/Calculated[1])	0/0	0/0	0/0

Notes:
\- = not available

[1] National and California statistics may differ for the following reasons: the state statistics are based on California approved samplers, whereas national statistics are based on samplers using the federal reference or equivalent methods.

[2] Measured days are those days that an actual measurement was greater than the level of the state daily standard or the national daily standard. Measurements are typically collected every 6 days. Calculated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year. The number of days a measurement was greater than the level of the national daily standard. Measurements are collected every day, every 3 days, or every 6 days, depending on the time of year and the site's monitoring schedule. The number of days above the standards is not directly related to the number of violations of the standard for the year.

Sources: California Air Resources Board 2004, U.S. Environmental Protection Agency 2004

Carbon Monoxide

CO is a colorless, odorless, and poisonous gas produced by incomplete burning of carbon in fuels, primarily from mobile (transportation) sources of pollution. In fact, 77% of the nationwide CO emissions are from mobile sources. The other 23% consists of CO emissions from wood-burning stoves, incinerators, and industrial sources.

CO enters the bloodstream through the lungs by combining with hemoglobin, which normally supplies oxygen to the cells. However, CO combines with hemoglobin much more readily than oxygen does, resulting in a drastic reduction in the amount of oxygen available to the cells. Adverse health effects associated with exposure to CO concentrations include such symptoms as dizziness, headaches, and fatigue. CO exposure is especially harmful to individuals who suffer from cardiovascular and respiratory diseases (U.S. Environmental Protection Agency 2004).

Marin County is currently designated as an attainment and unclassified/attainment area for the state and national CO standards, respectively (Table 4.2-1) (California Air Resources Board 2003, 2004).

As shown in Table 4.2-2, neither the state nor the national CO standards were exceeded from 2001 to 2003.

According to the 2004 California Almanac of Emissions and Air Quality (California Air Resources Board 2004), emissions of CO have been declining in the SFBAAB over the last 25 years. Motor vehicles and other mobile sources are the largest sources of CO emissions in the Basin. Emissions from motor vehicles have been declining, with the introduction of new automotive emission controls, despite increases in vehicle miles traveled (VMT). Oil refineries, manufacturing, and electric generation contribute a significant portion of the stationary source CO emissions. Area-wide CO emissions are primarily from residential fuel combustion (including wood), waste burning, and fires.

With respect to CO air quality trends according to the almanac, the peak CO indicator value during 2000 was less than half what it was during 1987 and is now well below the standards. In fact, neither the state nor national standards have been exceeded in the area since 1991. Based on emission projections, the area is expected to maintain an attainment status in the coming years.

Nitrogen Dioxide

NO_2 is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2 (U.S. Environmental Protection Agency 2004). The combined emissions of NO and NO_2 are referred to as NO_X, which are reported as equivalent NO_2. Because NO_2 is formed and depleted by reactions associated with photochemical smog (O_3), the NO_2 concentration in a particular geographical area may not be representative of the local NO_X emission sources.

Inhalation is the most common route of exposure to NO_2. Because NO_2 has relatively low solubility in water, the principal site of toxicity is in the lower respiratory tract. The severity of the adverse health effects depends primarily on the concentration inhaled rather than the duration of exposure. An individual may experience a variety of acute symptoms, including coughing, difficulty with breathing, vomiting, headache, and eye irritation during or shortly after exposure. After a period of approximately 4 to 12 hours, an exposed individual may experience chemical pneumonitis or pulmonary edema with breathing abnormalities, cough, cyanosis, chest pain, and rapid heartbeat. Severe, symptomatic NO_2 intoxication after acute exposure has been linked on occasion with prolonged respiratory impairment with such symptoms as chronic bronchitis and decreased lung functions.

Marin County is currently designated as an attainment or unclassified/attainment area for the state and national NO_2 standards, respectively (Table 4.2-1) (California Air Resources Board 2003, 2004).

As shown in Table 4.2-2, neither the state nor the national NO_2 standards were exceeded from 2001 to 2003.

Sulfur Dioxide

SO_2 is produced by such stationary sources as coal and oil combustion, steel mills, refineries, pulp and paper mills. The major adverse health effects associated with SO_2 exposure pertain to the upper respiratory tract. SO_2 is a respiratory irritant with constriction of the bronchioles occurring with inhalation of SO_2 at 5 ppm or more. On contact with the moist mucous membranes, SO_2 produces sulfurous acid, which is a direct irritant. Concentration rather than duration of the exposure is an important determinant of respiratory effects. Exposure to high SO_2 concentrations may result in edema of the lungs or glottis and respiratory paralysis.

Marin County is currently designated as an attainment and unclassified/attainment area for the state and national SO_2 standards, respectively (Table 4.2-1) (California Air Resources Board 2003, 2004).

Particulate Matter

Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM_{10}. PM_{10} consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires and natural windblown dust, and particulate matter formed in the atmosphere by condensation and/or transformation of SO_2 and reactive organic gases (U.S. Environmental Protection Agency 2004). $PM_{2.5}$ includes a subgroup of finer particles that have an aerodynamic diameter of 2.5 micrometers or less (California Air Resources Board 2004).

The adverse health effects associated with PM_{10} depend on the specific composition of the particulate matter. For example, health effects may be associated with metals, polycyclic aromatic hydrocarbons, and other toxic substances adsorbed onto fine particulate matter, which is referred to as the piggybacking effect, or with fine dust particles of silica or asbestos. Generally, adverse health effects associated with PM_{10} may result from both short-term and long-term exposure to elevated PM_{10} concentrations and may include breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, alterations to the immune system, carcinogenesis, and premature death (U.S. Environmental Protection Agency 2004). $PM_{2.5}$ poses an increased health risk because the particles can deposit deep in the lungs and contain substances that are particularly harmful to human health.

Marin County is currently designated as a non-attainment area for the state PM_{10} standard and as an unclassified area for the national standard (Table 4.2-1) (California Air Resources Board 2003, 2004). With respect to $PM_{2.5}$, Marin County is proposed to be designated as a non-attainment area for the state standard and recommended unclassified for the national standard.

As shown in Table 4.2-2, the national PM_{10} standard was not exceeded from 2001 to 2003; however, the state standard was exceeded a total of 6 times, 3 times in 2001 and 3 times in 2002.

According to the 2004 California Almanac of Emissions and Air Quality (California Air Resources Board 2004), direct emissions of PM_{10} are forecasted to increase slightly in the SFBAAB between 1975 and 2010. This increase is because of growth in emissions from are-wide sources, primarily fugitive dust sources. Emissions of directly emitted PM_{10} from diesel motor vehicles have decreasing since 1990 even though population and VMT are growing, because of adoption of more stringent emission standards.

Lead

Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the phase-out of leaded gasoline, as discussed in detail below, metal processing is currently the primary source of lead emissions. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.

Twenty years ago, mobile sources were the main contributor to ambient lead concentrations in the air. In the early 1970s, the EPA set national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. The EPA banned the use of leaded gasoline in highway vehicles in December 1995 (U.S. Environmental Protection Agency 2004).

As a result of the EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector have declined dramatically (95% between 1980 and 1999), and levels of lead in the air decreased by 94% between 1980 and 1999. Transportation sources, primarily airplanes, now contribute only 13% of lead emissions. A recent National Health and Nutrition Examination Survey reported a 78% decrease in the levels of lead in people's blood between 1976 and 1991. This dramatic decline can be attributed to the move from leaded to unleaded gasoline (as well as the removal of lead from soldered cans) (U.S. Environmental Protection Agency 2004).

The decrease in lead emissions and ambient lead concentrations over the past 25 years is California's most dramatic success story. As stated above, the rapid decrease in lead concentrations can be attributed primarily to phasing out the lead in gasoline. This phase-out began during the 1970s, and subsequent CARB regulations have virtually eliminated all lead from gasoline now sold in California. All areas of the state are currently designated as attainment for the state lead standard (the EPA does not designate areas for the national lead standard). Although the ambient lead standards are no longer violated, lead emissions from stationary sources still pose "hot spot" problems in some areas. As a result, the CARB identified lead as a toxic air contaminant (California Air Resources Board 2003).

4.2.2 REGULATORY BACKGROUND

Air quality with respect to criteria and toxic air pollutants/contaminants within Marin County are regulated by such agencies as the BAAQMD, CARB, and EPA. Each of these agencies develops rules, regulations, policies, and/or goals to attain the goals or directives imposed through legislation. Although the EPA regulations may not be superseded, both state and local regulations may be more stringent.

CRITERIA AIR POLLUTANTS

Federal Air Quality Regulations

U.S. Environmental Protection Agency

At the federal level, the EPA has been charged with implementing national air quality programs. The EPA's air quality mandates are drawn primarily from the Federal Clean Air Act (FCAA), which was enacted in 1963. The FCAA was amended in 1970, 1977, and 1990.

The FCAA required the EPA to establish primary and secondary NAAQS, as previously discussed (Table 4.2-1). The FCAA also required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The Federal Clean Air Act Amendments of 1990 (FCAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. The EPA has responsibility to review all state SIPs to determine conformation to the mandates of the FCAAA and determine if implementation will achieve air quality goals. If the EPA determines a SIP to be inadequate, a Federal Implementation Plan (FIP) may be prepared for the nonattainment area that imposes additional control measures. Failure to submit an approvable SIP or to implement the plan within the mandated timeframe may result in sanctions being applied to transportation funding and stationary air pollution sources in the air basin.

State Air Quality Regulations

California Air Resources Board

The CARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA), which was adopted in 1988. The CCAA requires that all air districts in the state endeavor to achieve and maintain the California Ambient Air Quality Standards (CAAQS) by the earliest practical date. The act specifies that districts should focus particular attention on reducing the emissions from transportation and area-wide emission sources, and provides districts with the authority to regulate indirect sources.

The CARB is primarily responsible for developing and implementing air pollution control plans to achieve and maintain the NAAQS. The CARB is primarily responsibility for statewide pollution sources and produces a major part of the SIP. However, local air districts are still relied upon to provide additional strategies for sources under their jurisdiction. The CARB combines this data and submits the completed SIP to the EPA.

Other CARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air pollution control and air quality management districts), establishing CAAQS (which in many cases are more stringent than the NAAQS), determining and updating area designations and maps, and setting emissions standards for new mobile sources, consumer products, small utility engines, and off-road vehicles.

Local Air Quality Regulations

Bay Area Air Quality Management District

The BAAQMD attains and maintains air quality conditions in Marin County through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of the BAAQMD includes the preparation of plans for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, and issuance of permits for stationary sources of air pollution. The BAAQMD also inspects stationary sources of air pollution and responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by the FCAA, FCAAA, and the CCAA.

In 1999, the BAAQMD released the BAAQMD CEQA Guidelines (BAAQMD 1999). This is an advisory document that provides lead agencies, consultants, and project applicants with uniform procedures for addressing air quality in environmental documents. The handbook contains the following applicable components:

- Criteria and thresholds for determining whether a project may have a significant adverse air quality impact;

- Specific procedures and modeling protocols for quantifying and analyzing air quality impacts;

- Methods available to mitigate air quality impacts;

- Information for use in air quality assessments and environmental documents that will be updated more frequently such as air quality data, regulatory setting, climate, topography, etc.

Air Quality Plans

As stated above, the BAAQMD prepares plans to attain ambient air quality standards in the SFBAAB. The BAAQMD prepares ozone attainment plans (OAP) for the national ozone standard and clean air plans (CAP) for the California standard both in coordination with the Metropolitan Transportation Commission and the Association of Bay Area Governments. The most recent of which are the 2001 OAP and the 2000 CAP. The 2001 OAP is a revision to the Bay Area part of SIP and was prepared in response to the EPA's partial disapproval of the 1999 OAP. The 2001 OAP for the national 1-hour ozone standard includes two commitments for further planning: (1) conduct a mid-course review of progress toward attaining the national 1-hour ozone standard by December 2003, and (2) provide a revised ozone attainment strategy to the EPA by April 2004.

The 2000 CAP was adopted by the BAAQMD on December 20th, 2000 and was then submitted to the CARB. The CCAA requires the BAAQMD to update the CAP for attaining the state 1-hour ozone standard every three years. The 2000 CAP is the third triennial update of the BAAQMD's original 1991 CAP. The 2000 CAP includes a control strategy review to ensure that the CAP includes all feasible measures to reduce ozone, updates to the emissions inventory, estimates of emission reductions, and assessments of air quality trends.

In April 2004, the EPA made a final finding that the SFBAAB has attained the national 1-hour ozone standard. Because of this finding, the previous planning commitments in the 2001 OAP are no longer required. The finding of attainment does not mean the SFBAAB has been reclassified as an attainment area for the 1-hour standard. The region must submit a redesignation request to EPA to be reclassified as an attainment area. Therefore, the portion of the 2004 Ozone Strategy addressing national ozone planning requirements will include: (1) a redesignation request and (2) a maintenance plan to show the region will continue to meet the 1-hour ozone standard. In addition, the 2004 Ozone Strategy will assess progress toward both ozone standards, review air pollution control strategies, and determine what additional control strategies will be needed (BAAQMD 2004).

TOXIC AIR CONTAMINANTS

Toxic air contaminants (TACs), or in federal parlance under the FCAA, hazardous air pollutants (HAPs), are pollutants that result in an increase in mortality, a serious illness, or pose a present or potential hazard to human health. Health effects of TACs may include cancer, birth defects, and immune system and neurological damage.

TACs can be separated into carcinogens and noncarcinogens based on the nature of the physiological degradation associated with exposure to the pollutant. For regulatory purposes, carcinogens are assumed to have no safe threshold below which heath impacts will not occur. Noncarcinogenic TACs differ in that there is a safe level in which it is generally assumed that no negative health impacts would occur. These levels are determined on a pollutant-by-pollutant basis.

It is important to understand that TACs are not considered criteria air pollutants and thus are not specifically addressed through the setting of ambient air quality standards. Instead, the EPA and CARB regulate HAPs and TACs, respectively, through statutes and regulations that generally require the use of the maximum or best available control technology (MACT and BACT) to limit emissions. These in conjunction with additional rules set forth by the BAAQMD establish the regulatory framework for TACs.

Federal Hazardous Air Pollutant Program

Title III of the FCAA requires the EPA to promulgate national emissions standards for HAPs (NESHAP). The NESHAP may differ for major sources than for area sources of HAPs. (Major sources are defined as stationary sources with potential to emit more than 10 tons per year [TPY] of any HAP or more than 25 TPY of any combination of HAPs; all other sources are considered area sources.) The emissions standards are to be promulgated in two phases. In the first phase (1992–2000), the EPA developed technology-based emission standards designed to produce the maximum emission reduction achievable. These standards are generally referred to as requiring MACT. For area sources, the standards may be different, based on generally available control technology. In the second phase (2001–2008), the EPA is required to promulgate health risk–based emissions standards where deemed necessary to address risks remaining after implementation of the technology-based NESHAP standards.

The FCAAA required the EPA to promulgate vehicle or fuel standards containing reasonable requirements that control toxic emissions, at a minimum to benzene and formaldehyde. Performance criteria were established to limit mobile-source emissions of toxics, including benzene, formaldehyde, and 1,3-butadiene. In addition, §219 required the use of reformulated gasoline in selected U.S. cities (those with the most severe O_3 nonattainment conditions) to further reduce mobile-source emissions.

State and Local Toxic Air Contaminant Programs

California regulates TACs primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure for CARB to designate substances as TACs. This includes research, public participation, and scientific peer review before CARB can designate a substance as a TAC. To date, CARB has identified over 21 TACs, and adopted the EPA's list of HAPs as TACs. Most recently, diesel exhaust particulate was added to the CARB list of TACs.

Once a TAC is identified, CARB's then adopts an Airborne Toxics Control Measure for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate BACT to minimize emissions. None of the TACs identified by CARB have a safe threshold.

The Hot Spots Act requires that existing facilities that emit toxic substances above specified level:

- Prepare a toxic emission inventory;
- Prepare a risk assessment if emissions are significant;
- Notify the public of significant risk levels;
- Prepare and implement risk reduction measure.

At the local level, air pollution control or management districts may adopt and enforce CARB's control measures. Under BAAQMD Rule 2-1 (General Permit Requirements) and Rule 2-2 (New Source Review), all sources that possess the potential to emit TACs are required to obtain permits from the district. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including new source review standards and air toxics control measures. The BAAQMD limits emissions and public exposure to TACs through a number of programs. The BAAQMD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors.

ODORS

Typically odors are generally regarded as an annoyance rather than a health hazed. However, manifestations of a person's reaction to foul odors can range from the psychological (i.e. irritation, anger, or anxiety) to the physiological, including circulatory and respiratory effects, nausea, vomiting, and headache.

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor and in fact an odor that is offensive to one person may be perfectly acceptable to another (i.e. fast food restaurant). It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word strong to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

Neither the state nor the federal governments have adopted any rules or regulations for the control of odors sources. However, the BAAQMD has adopted Rule 7 (Odorous Substances) that specifically addresses citizen complaints.

With respect to lead, the BAAQMD has adopted Regulation 11 Rule 1, which includes standards and a manual of procedures. In addition, the BAAQMD has adopted Regulation 11 Rules 11 and 14, which address asbestos demolition renovation, manufacturing, and standards for asbestos containing serpentine.

4.2.3 ENVIRONMENTAL IMPACTS OF THE PROJECT

THRESHOLDS OF SIGNIFICANCE

For the purpose of this analysis, the following applicable thresholds of significance, as identified by the BAAQMD (BAAQMD 1999) or by the State CEQA Guidelines (Appendix G), have been used to determine whether implementing the proposed project would result in a significant air quality impact.

- **Short-Term Construction Impacts.** Construction impacts associated with the proposed project would be considered significant if the applicable control measures as listed in the BAAQMD CEQA Guidelines are not implemented.

- **Long-Term Regional (Operational) Impacts.** Regional impacts associated with the proposed project would be considered significant if implementation of the project results in emissions of ROG, NO_X, or PM_{10} that exceed 15 tons per year, 80 pounds per day, or 36 kilograms per day.

- **Local Mobile Source Carbon Monoxide Impacts.** Local impacts associated with the proposed project would be considered significant if the project results in or contributes to CO concentrations that exceed the California 1-hour ambient air quality standard of 20 ppm or the 8-hour standard of 9 ppm.

- **Toxic Air Contaminant Impacts.** Toxic air contaminant impacts associated with the proposed project would be considered significant if project construction or operation results in the exposure of sensitive receptors to toxic air contaminant emissions that exceed 10 in 1 million for the Maximally Exposed Individual (MEI) to contact cancer and/or a Hazard Index of 1 for the MEI.

- **Odor Impacts.** Odor impacts associated with the proposed project would be considered significant if project construction or operation results in the exposure of sensitive receptors to unpleasant odorous emissions.

GENERATION OF TEMPORARY EMISSIONS FROM CONSTRUCTION ACTIVITIES

Construction emissions are described as "short term" or temporary in duration and have the potential to represent a significant impact with respect to air quality, especially in the case of PM_{10}. Fugitive dust emissions are associated primarily with site preparation and vary as a function of such parameters as soil silt content, soil moisture, wind speed, acreage of disturbance area, and VMT on- and off-site. ROG and NO_X emissions are associated primarily with construction equipment exhaust and the application of architectural coatings.

With respect to the project, the construction of the proposed condemned inmate complex would temporarily generate emissions of ROG, NO_X, and PM_{10} from site grading and excavation, paving, demolition, motor vehicle exhaust associated with construction equipment, employee commute trips, and material transport (especially on unpaved surfaces), and other construction operations.

The BAAQMD emphasizes implementation of effective and comprehensive control measures rather than requiring a detailed quantification of construction emissions. The BAAQMD requires that all feasible control measures, which are dependent on the size of the construction area and the nature of the construction operations involved, shall be incorporated into the project design and implemented during all construction activities. Because the required control measures are not currently incorporated as an element of the project, the short-term construction emissions could result in or contribute to a violation of the air quality standards. As a result, this impact would be potentially significant (4.2-a).

GENERATION OF LONG-TERM REGIONAL (OPERATIONAL) EMISSIONS OF ROG, NO_X, AND PM_{10}

Regional area- and mobile-source emissions of ROG, NO_X, and PM_{10} (which includes $PM_{2.5}$) associated with the implementation of the project were estimated using URBEMIS 2002 Version 7.4.2 computer program, which is designed to model emissions for land use development projects. URBEMIS allows land use selections that include project location specifics and trip generation rates along with double-counting and pass-by trip options. The double-counting option is designed to minimize double counting of internal vehicle trips between residential and non-residential land uses. The pass-by trip option estimates vehicle-trip emissions based on the percentage of primary trips, diverted linked trips, and pass-by trips assumed for specific land uses. URBEMIS accounts for area emissions from the usage of natural gas, wood stoves, fireplaces, landscape maintenance equipment, and consumer products; and mobile sources emissions because of generation of vehicle trips.

Regional area and mobile source emissions were estimated based on trip generation rates presented in the transportation analysis (DKS 2004) and default model settings for conditions in the SFBAAB. Based on the modeling conducted, the operation of the proposed project would result in unmitigated long-term regional emissions of approximately 21.14 lbs/day of ROG, 28.86 lbs/day of NO_X, and 19.11 lbs/day of PM_{10}, as summarized in Table 4.2-3. The long-term regional emissions would be primarily associated with mobile sources because of additional employee and visitor trips rather than area sources, which consist of landscape maintenance emissions. The proposed project would also result in emissions of CO. However, because CO disperses rapidly with increased distance from the source, emissions of CO are considered localized pollutants of concern rather than of regional concern. Refer to the analysis of local CO emissions. CDC proposes to locate 4 emergency standby generators on the project site to supply power in the event of a power emergency. These generators would provide basic electrical services to the site and would operate the electrified perimeter fence. Two 1,000 kilowatt (kw), one 1,000 kw, and one 100 kw generator would be located at the CIC. Additional emissions may result from the use of emergency standby generators; however, the operation of such would be limited to maintenance purposes and during actual interruption of power only and not more than the total hours specified in the permit to operate.

Table 4.2-3
Summary Long-Term Regional Emissions

	ROG (lbs/day)	NO_X (lbs/day)	PM_{10} (lbs/day)
PROPOSED PROJECT[1]			
Area Source	0.06	0.01	-
Mobile Vehicle Source	21.08	28.85	19.11
Total Unmitigated	21.14	28.86	19.11
BAAQMD Threshold Significance	80	80	80

[1] Modeling based on trip generation information as presented in the traffic analysis prepared for this project and default model conditions for the SFBAAB. See modeling results in Appendix C for further detail.
Source: EDAW 2004

Daily emissions of ROG, NO_X, and PM_{10} would not exceed the BAAQMD's significance threshold, and therefore would not result in or contribute to concentrations that exceed or conflict with applicable standards and plans. As a result, this impact would be considered less than significant (4.2-b).

GENERATION OF LOCAL MOBILE-SOURCE CO EMISSIONS

Carbon monoxide (CO) concentration is a direct function of vehicle idling time and, thus, traffic flow conditions. Under specific meteorological conditions, CO concentrations near congested roadways and/or intersections may reach unhealthy levels with respect to local sensitive land-uses such as residential areas, schools, and hospitals. As a result, the BAAQMD recommends analysis of CO emissions at a local rather than a regional level.

The Transportation Project-Level Carbon Monoxide Protocol (Garza et al. 1997) states that signalized intersections at level of service (LOS) E or F represent a potential for a CO violation, also known as a "hot spot." Thus, modeling of CO concentrations is typically recommended for receptors located near signalized roadway intersections that are projected to operate at a LOS E or F.

According to the traffic analysis prepared for the project, signalized intersections in the vicinity of the project site would be anticipated to operate at acceptable LOS with implementation of the proposed project (DKS 2004). Under project conditions all signalized intersections are predicted to operate at a LOS of C or better (DKS 2004). Thus, implementation of the project would not be anticipated to result in or contribute to local CO concentrations that exceed the California 1- or 8-hour ambient air quality standards of 20 parts per million (ppm) and 9 ppm, respectively. As a result, this impact would be less than significant (4.2-c).

EXPOSURE OF SENSITIVE RECEPTORS TO TOXIC AIR EMISSIONS

The exposure of sensitive receptors to toxic air emissions from short-term construction equipment, existing stationary sources, and proposed stationary sources are discussed separately below.

Short-term Construction Mobile Sources

Construction of the project would result in diesel exhaust emissions from onsite heavy duty equipment. As previously discussed, particulate exhaust emissions from diesel-fueled engines (diesel PM) were identified as a toxic air contaminant by the CARB in 1998. Construction-related diesel PM emissions would occur from the use of off-road diesel equipment required for site grading and excavation, paving, and other construction activities. Diesel PM from construction projects would not be anticipated to result in the exposure of sensitive receptors (i.e., prison employee residences) to levels that exceed the BAAQMD standards because of the fact that mobile diesel equipment would only be present onsite temporarily during construction activities. In addition, modeling conducted for the construction of similar projects resulted in levels below the applicable thresholds. Therefore, construction activities associated with the project would not be anticipated to result in the generation of diesel PM emissions that exceed the BAAQMD thresholds of significance.

Stationary Sources

As discussed above, implementation of the project would include the installation of two 2,000 kW, one 1,000 kW, and one 100 kW, emergency standby generators. Each would be tested monthly. Emissions associated with diesel and natural gas combustion specifically diesel particulate matter are classified as toxic air contaminants by the CARB. The emergency generators located at the CIC would only operate for maintenance purposes and during actual interruption of power and would not exceed the total hours directed in the permit to operate. Under BAAQMD 2-1 (General Permit Requirements), all sources that possess the potential to emit TACs are required to obtain permits from the BAAQMD. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including Rule 2-2 (New Source Review).

Given that compliance with applicable standards are required for the construction and operation of land uses that may result in the emissions of TACs, the TAC emissions from the routine use of facilities in operations, both on and off the project site, are expected to be within established standards. As a result, stationary sources of toxic air emissions would be less than significant (4.2-d).

EXPOSURE OF SENSITIVE RECEPTORS TO ODOROUS EMISSIONS

The occurrence and severity of odor impacts depend on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the presence of sensitive receptors.

While offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress and often generating citizen complaints to local governments and regulatory agencies.

The project would not include the long-term operation of an odorous emission source; however, construction of the project would result in diesel exhaust emissions from onsite diesel equipment. Such emissions would be quite intermittent in nature and would dissipate rapidly from the source. In addition, mobile diesel equipment would only be present onsite temporarily during construction operations. Thus, the construction of the project is not anticipated to result in the exposure of sensitive receptors # (i.e., prison employee residences) to an objectionable odor source. As a result, this impact would be less than significant (4.2-e).

4.2.4 PROPOSED MITIGATION MEASURES

LESS-THAN-SIGNIFICANT IMPACTS

The following impacts were identified as less than significant, and therefore no mitigation is needed:

4.2-b: Generation of Long-Term Regional (Operational) Emissions of ROG, NO_X, and PM_{10}
4.2-c: Generation of Local Mobile-Source CO Emissions
4.2-d: Exposure of Sensitive Receptors to Toxic Air Emissions
4.2-e: Exposure of Sensitive Receptors to Odorous Emissions

SIGNIFICANT IMPACTS THAT CAN BE MITIGATED TO A LESS-THAN-SIGNIFICANT LEVEL

The following impact was identified as significant. Mitigation to reduce this impact to a less-than-significant level is recommended below.

4.2-a: Generation of Temporary Emissions from Construction Activities

In accordance with BAAQMD CEQA Guidelines (BAAQMD 1999), the following mitigation, which includes BAAQMD-recommended basic, enhanced, and optional control measures, shall be implemented to reduce construction generated emissions to a less-than-significant level.

- Water all active construction areas at least twice daily or as often as needed to control dust.
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard.
- Pave, apply water three times daily or as often as needed to control dust, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.
- Apply (non-toxic) soil stabilizers or water to inactive construction areas (previously graded areas inactive for ten days or more).
- Enclose, cover, water as needed, or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.) as needed to control dust.
- Limit traffic speeds on unpaved roads to 15 mph.
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways and to the bay.

- Install wheel washers and/or gravel strips for all exiting trucks, or wash off the tire or tracks of all trucks and equipment before leaving the site.

- Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 mph and dust is created.

- Minimize unnecessary idling time.

- Maintain properly tuned equipment.

In addition to the measures identified below, construction activities are also required to comply with all applicable BAAQMD rules and regulations, specifically Rule 8-3 regarding architectural coatings, Rule 8-15 regarding asphalt paving, Rule 11-2 regarding demolition, and Regulation 6 regarding particulate matter and visible emissions.

According to the BAAQMD CEQA Guidelines (BAAQMD 1999), implementation of the above mitigation measures would reduce air pollutant emissions from construction activities to a less-than-significant level.